DATA VALIDATION REPORT

Gold King Mine Release Incident

SAMPLE DELIVERY GROUP: 680-117013-6

Prepared by

MEC^X
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I. INTRODUCTION

Task Order Title:	Gold King Mine Release Incident
Project No.:	20408.012.001.0274.00 20408.012.001.0267.00
Sample Delivery Group:	680-117013-6
EPA Project Manager:	Steve Way
Weston Project Manager:	Dave Robinson
TDD No.:	0001/1508-04
Matrix:	Water
QC Level:	Stage 2A
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica-West Sacramento

Table 1. Sample Identification

Location ID	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
CC06_09212015_1300	680-117013-3	Water	9/21/15 1:00 PM	8290A

II. Sample Management

Anomalies regarding sample management are noted below. The sample was received below the temperature limits of 4°C ±2°C, at 0.5°C; however, as the sample was not noted to be frozen or damaged, no qualification was necessary. The sample was received intact, on ice, and properly preserved. The chains-of-custody (COCs) were appropriately signed and dated by field and laboratory personnel. The presence or absence of custody seals on the cooler was not specifically noted.

The following issues were noted:

- Several corrections made to the COC were made by overwriting the original entry. Most corrections were initialed; however, most corrections were not dated.
- The COCs did not list CLP sample IDs, and none were provided. The laboratory logged the samples per the location IDs on the COCs.
- The presence or absence of sample tags was not noted in the case narrative, and sample tags were not listed on the COCs.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.

Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.

Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA Method 8290A— Dioxin/Furans

Reviewed By: L. Calvin
Date Reviewed: October 1, 2015

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Organic Superfund Methods, EPA Method SW-846 8290A, Contract Laboratory Program Statement of Work for Organic Superfund Methods,* and the *National Functional Guidelines for Chlorinated Dioxin and Furan Data Review* (2011).

- Holding Times: The aqueous sample was extracted and analyzed within 35 days of receipt.

- Analytical Method Blanks: The method blank had detects below the reporting limits for 1,2,3,4,6,7,8-HpCDD (0.727 pg/L), 1,2,3,4,6,7,8-HpCDF (0.770 pg/L), OCDD (2.91 pg/L), OCDF (2.01 pg/L), and totals HpCDD, HpCDF, and TCDF. Sample results for 1,2,3,4,6,7,8-HpCDD and OCDD were qualified as nondetected (UB) at the level of contamination. The sample result for total HpCDD was qualified as estimated (J), as the portion of the total due to method blank contamination could not be determined.

- Laboratory Control Sample (LCS): LCS recoveries were within the laboratory-established control limits.

- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were not performed on the sample in this SDG due to limited sample volume.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.

    - Field Duplicates: This SDG had no identified field duplicate samples.

- Internal Standards Performance: The labeled standard recoveries were within the control limits of 40-135%.

- Compound Identification: A detect not meeting the method ion abundance ratio criteria was flagged by the laboratory as an estimated possible concentration (EMPC); however, as the EMPC for OCDD was previously qualified as nondetected for method blank contamination, the result was not further qualified.

Validated Sample Result Forms: 680-117013-6

Analysis Method 8290A

Sample Name CC06_09212015_1300 **Matrix Type:** Water

Lab Sample Name: 680-117013-3 **Sample Date:** 9/21/2015 1:00:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	T	35822-46-9	0.39	48	0.21	pg/L	J B	UB	B
1,2,3,4,6,7,8-HpCDF	T	67562-39-4	0.13	48	0.13	pg/L	U	U	
1,2,3,4,7,8,9-HpCDF	T	55673-89-7	0.15	48	0.15	pg/L	U	U	
1,2,3,4,7,8-HxCDD	T	39227-28-6	0.23	48	0.23	pg/L	U	U	
1,2,3,4,7,8-HxCDF	T	70648-26-9	0.17	48	0.17	pg/L	U	U	
1,2,3,6,7,8-HxCDD	T	57653-85-7	0.2	48	0.2	pg/L	U	U	
1,2,3,6,7,8-HxCDF	T	57117-44-9	0.15	48	0.15	pg/L	U	U	
1,2,3,7,8,9-HxCDD	T	19408-74-3	0.19	48	0.19	pg/L	U	U	
1,2,3,7,8,9-HxCDF	T	72918-21-9	0.18	48	0.18	pg/L	U	U	
1,2,3,7,8-PeCDD	T	40321-76-4	0.32	48	0.32	pg/L	U	U	
1,2,3,7,8-PeCDF	T	57117-41-6	0.22	48	0.22	pg/L	U	U	
2,3,4,6,7,8-HxCDF	T	60851-34-5	0.17	48	0.17	pg/L	U	U	
2,3,4,7,8-PeCDF	T	57117-31-4	0.23	48	0.23	pg/L	U	U	
2,3,7,8-TCDD	T	1746-01-6	0.3	9.6	0.3	pg/L	U	U	
2,3,7,8-TCDF	T	51207-31-9	0.16	9.6	0.16	pg/L	U	U	
OCDD	T	3268-87-9	0.93	96	0.32	pg/L	J q B	UB	B
OCDF	T	39001-02-0	0.32	96	0.32	pg/L	U q	U	
Total HpCDD	T	37871-00-4	1.1	48	0.21	pg/L	J B	J	B
Total HpCDF	T	38998-75-3	0.15	48	0.15	pg/L	U	U	
Total HxCDD	T	34465-46-8	0.23	48	0.23	pg/L	U	U	
Total HxCDF	T	55684-94-1	0.18	48	0.18	pg/L	U	U	
Total PeCDD	T	36088-22-9	0.32	48	0.32	pg/L	U	U	
Total PeCDF	T	30402-15-4	0.23	48	0.23	pg/L	U	U	
Total TCDD	T	41903-57-5	0.3	9.6	0.3	pg/L	U	U	
Total TCDF	T	30402-14-3	0.16	9.6	0.16	pg/L	U	U	